Fact Sheet

California Environmental Protection Agency
Air Resources Board

Children's Environmental Health Air Quality Study in Crockett

Air Monitoring Results

Crockett Air Monitoring Study

- The Air Resources Board (ARB) conducted air monitoring at John Swett High School in Crockett from October 2001 to May 2003 as part of the Children's Environmental Health Program. The purpose was to determine if current routine monitoring sites capture children's exposure to air pollution.
- The data collected was compared to measurements at long-term monitoring sites in San Pablo, Vallejo, and Fremont (toxics only).

Crockett and Long-term Monitoring Sites

- The Crockett community was selected due to its proximity to air pollution sources, including oil refineries, major oil storage facilities, and a major freeway.
- Over 50 air pollutants were monitored at the study's primary site: John Swett High School (Crockett).
- The John Swett High School site did not operate from December 20, 2002 until February 14, 2003 due to a lack of electrical power.

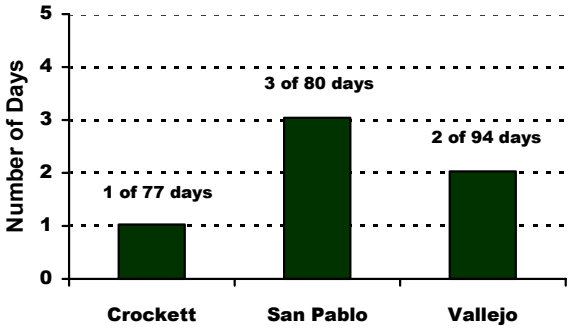
Key Pollutants Measured at Crockett

- Particulate matter (PM_{10}) is made up of small particles in the air that may be breathed deep into the lungs. PM_{10} can cause breathing difficulties, lung damage, and premature death.
- Ozone is a key component of what is commonly referred to as smog. It can cause breathing difficulties and lung damage.
- Toxic air pollutants include many substances that can cause health effects such as cancer, respiratory problems, and other serious illnesses. Many were monitored for in the Crockett study including benzene and 1,3-butadiene.

Particulate Matter (PM10)

- PM_{10} was monitored at John Swett High School for nineteen months (October 2001 through May 2003).
- The federal 24-hour PM_{10} standard (150 ug/m3) was not exceeded at any of the sites during the study.
- All three sites examined had exceedances of the State 24-hour PM_{10} standard (50 ug/m3).
- The San Pablo site exceeded the State 24-hour standard three times. The Vallejo sites exceeded the State 24-hour standard on two occasions, while the Crockett site exceeded the State 24-hour standard on one occasion.
  (Note: All three sites exceeded the standard on Thanksgiving 2002)
- Comparisons of the PM_{10} from all three sites indicated that the average concentrations of PM_{10} were similar between Crockett and Vallejo, while San Pablo was only slightly higher.

Number of Days Above the State 24-Hour PM10 Standard (50 ug/m3) (October 2001 through May 2003)



(PM10 Sampled Once Every Six Days)

September 2004

PM2.5

- During the study we recorded unexpectedly high PM2.5 measurements at John Swett High School. We later found this was due to an improperly adjusted PM2.5 monitor. In general, the instrument problem caused the monitor to read about 25% higher than actual values. Because of this instrument problem, most of the PM2.5 monitoring data collected in the Crockett study was invalidated. Those Crockett PM2.5 values that were valid were slightly lower than comparable PM2.5 values measured in Concord.

Ozone

- Neither the State nor federal one-hour ozone standards were violated during the 19 months when ozone was monitored at John Swett High School. During that same time period, the State one-hour ozone standard (90 ppb) was violated on one day at the Vallejo site.

Crockett Study Site

Toxic Air Pollutants

- In general, the levels of toxic pollutants measured at John Swett High School were similar or lower than those measured at Fremont.
- The Fremont site is the closest toxic air monitoring site to Crockett in the Bay Area, but it is about 50 miles away.
- Based on the information collected in this study, the estimated cancer risk associated with toxic air pollutants (not including diesel particulate matter) in Crockett is 85 excess cases of cancer per million people exposed. This is lower than the estimated toxic air pollutant cancer risk of 167 in a million in Fremont or the statewide urban average toxic air pollutant risk of 204 in a million. The higher estimated toxic air pollutant cancer risk at Fremont could primarily be due to higher impacts from motor vehicles. The estimated potential cancer risk represents the chances in a million of developing cancer due to breathing toxic air pollutants. These numbers do not include diesel particulate matter.
- John Swett High School monitoring site has lower levels of toxic pollutants from motor vehicles, primarily benzene and 1,3-butadiene, than generally seen at other SB25 sites in California.
- Currently, there is no accepted method for measuring diesel particles in the air. As a result, estimates from the study do not include risk from diesel particles.

Conclusions

- The overall air quality measured at John Swett High School was comparable and in some cases better than what was measured at monitoring sites in other nearby cities in the San Francisco Bay Area.
- For toxics that represent the greatest risk, the levels were lower at Crockett than the levels routinely found at Fremont. However, because Fremont is 50 miles away, it has limited value for local comparisons.

For More Information

- ARB has prepared a more detailed report on the results of the Crockett study. You can locate this detailed report within ARB's Community Health web pages at http://www.arb.ca.gov/ch/ch.htm
- For more information about the Crockett Community Environmental Health Air Quality Study, contact ARB's Community Health Program at (916) 324-7156 or visit our website at http://www.arb.ca.gov/ch/ch.htm